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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,234

03/02/2004

Yick Ming Yeung

118035-158466

9849

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07/25/2008

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EXAMINER

KRASNIC, BERNARD

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

07/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,234

Applicant(s)

YEUNG ET AL.

Examiner

BERNARD KRASNIC

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 24, 28-41, 51, 55-57 and 82-91 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 24, 28-41, 51, 55-57 and 82-91 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-849)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08/23/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I [corresponding Successive Bit-plane Rate Allocation method, or SBRA method] in the reply filed on 3/25/2008 is acknowledged.
2. Claims 58-68 and 78 of Group I have been canceled without prejudice.
3. Claims 15-23, 25-27, 42-50, 52-54, 69-77, and 79-81 are withdrawn.
4. New claims 82-91 directed towards the subject matter of Group I have been entered [The Examiner is uncertain the new claims are directed towards the subject matter of Group I because the Examiner doesn't believe such claim language even has enablement as will be discussed below].

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the generalized method steps [defining the different parameters (target bit rate, collections of coefficients, global coding order, coding units and corresponding truncation points for each of said collections of coefficients, local coding order, rate value, distortion value, threshold value) and encoding of the coefficients based on the termination criterion] as

disclosed in independent claim 1 respectively must be shown or the feature(s) canceled from the claim(s). The current figures show no real representation of the current invention besides showing graphs [for example rate distortion graphs] and examples of image results. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because the abstract should reflect the elected species of Group I [SBRA method] and should not exceed 150 words in length. Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:

Page 1, line 3: The -- CROSS REFERENCE TO RELATED APPLICATIONS -- section must be included in the specification above the "BACKGROUND OF THE INVENTION" section to inform of any related applications, in this case the Provisional Application 60/450,692 03/03/2003.

Appropriate correction is required.

Claim Objections

9. Claims 14, 32, and 37 are objected to because of the following informalities:

Claim 14, line 3: "a the source data" should be -- the source data --.

Claim 32, line 4: "said the particular" should be -- said particular --.

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Re Claim 37, line 2: "the code-blocks" should be -- are code-blocks --.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

11. Claim(s) 28-41 and 51 is/are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 28 [claims 29-41

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and 51 depend from independent claim 28] defines an article of manufacture comprising a storage medium embodying functional descriptive material (i.e., a computer program or computer executable code, programming instructions). However, the claim does not define a “computer-readable medium or computer-readable memory” and is thus non-statutory for that reason (i.e., “When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory (refer to “note” below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

“A transitory, propagating signal ... is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” (In re Nuijten, 84 USPQ2d 1495 (Fed. Cir. 2007)). Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a “signal”, the claim as a whole would be non-statutory. Should

the applicant's specification define or exemplify the computer readable medium or memory (or whatever language applicant chooses to recite a computer readable medium equivalent) as statutory tangible products such as a hard drive, ROM, RAM, etc, **as well as** a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to include the disclosed tangible computer readable storage media, while at the same time excluding the intangible transitory media such as signals, carrier waves, etc.

Merely reciting functional descriptive material as residing on a tangible medium is not sufficient. If the scope of the claimed medium covers media other than "computer readable" media (e.g., "a tangible media", a "machine-readable media", etc.), the claim remains non-statutory. The full scope of the claimed media (regardless of what words applicant chooses) should not fall outside that of a computer readable medium.

12. Claim(s) 55-57 is/are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 55 [claims 56-57 depend from independent claim 55] defines an "apparatus" [system]. However, while the preamble defines an "apparatus", the body of the claim lacks definite structure indicative of a physical apparatus. Furthermore, the specification indicates that the invention may be embodied as pure software [see Applicant's specification, page 23, lines 23-28, see current claim 28, program instructions to perform all the same respective "means plus function steps"]. Therefore, the claim as a whole appears to be

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nothing more than a "system" of software elements, thus defining functional descriptive material per se.

Functional descriptive material may be statutory if it resides on a "computer-readable medium or computer-readable memory". The claim(s) indicated above lack structure, and do not define a computer readable medium and are thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. **The examiner suggests:**

1. Amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory; or

2. **Adding structure to the body of the claim that would clearly define a statutory apparatus.**

Any amendment to the claim should be commensurate with its corresponding disclosure.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claims 82-91 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For example in independent claim 82, the claim limitation "dividing a first successive one of the plurality of collections of coefficients into a plurality of coding units" is not enabled by the specification because the collection of coefficients are first defined and then corresponded to the appropriate coding units with the appropriate truncation points as is discussed in claim 1 and in the specification [see Applicants specification, page 11, lines 16-25, page 12, lines 1-8, corresponding the elected Group I - SBRA method]; the claim limitation "coding coded versions of all coding units" also is not enabled by the specification because the coding units are not being coded or encoded but the collection of coefficients are coded or encoded based on a determination for the coding units with respect to the termination criterion [comparison of the rate-distortion with respect to the threshold] as is discussed in claim 1 and in the specification [see Applicants specification, page 11, lines 16-25, page 12, lines 1-8, corresponding the elected Group I - SBRA method]. Also for example in dependent

claim 91, the claim limitation "second time frame, later in time and distinct from the first time frame" is not enabled because the specification doesn't describe how time frames are incorporated in the method steps for encoding of the collection of coefficients.

Therefore, because claims 82-91 are not enabled by the disclosed specification and are clearly different from the discussed subject matter of the SBRA method in the specification, the Examiner will not consider these claims for any further formal rejections or any further art rejections. The Examiner suggests canceling these claims, or amending them to resemble the enabled invention as described in the specification for the elected SBRA method. Any amendment to the claim should be commensurate with its corresponding disclosure.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 7-9, 28-41, 51, and 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re Claims 7-9, line 2 respectively: The claim limitation "the threshold value" makes this claim indefinite because it is unclear which threshold it refers to, the threshold of claim 1 or the threshold of claim 4.

Re Claim 8, line 3: The limitation "all past code-blocks" lacks clear antecedent basis; the Examiner assumes the code blocks are the collections of coefficients and it has been treated as such.

Re Claim 28, lines 1-6: The claim is indefinite because it is unclear and uncertain if the claim is an "apparatus" claim or "an article of manufacture" claim.

Re Claim 28, line 20: The claim limitation "the local coding order" lacks clear antecedent basis. In view of claim 1, "the local coding order" in line 20 of claim 28 is suggested to be -- the first coding order -- and it has been treated as such.

Claims 29-41 and 51 are dependent upon claim 28.

Re Claim 30, lines 4 and 7: The claim limitation "the local coding order" lacks clear antecedent basis. In view of claim 3, "the local coding order" in lines 4 and 7 of claim 30 is suggested to be -- the second coding order -- and it has been treated as such.

Re Claims 34-36, line 2 respectively: The claim limitation "the threshold value" makes this claim indefinite because it is unclear which threshold it refers to, the threshold of claim 28 or the threshold of claim 31.

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Re Claims 35-36, line 4, claim 51, line 3 respectively: The claim limitation "the global coding order" lacks clear antecedent basis. It is suggested to be -- the first coding order -- and it has been treated as such.

Re Claims 35-36, lines 5-6 and 8, claim 57, lines 3 and 6 respectively: The claim limitation "the local coding order" lacks clear antecedent basis. It is suggested to be -- the second coding order -- and it has been treated as such.

Re Claim 40, line 3: The claim limitation "the coding order" lacks clear antecedent basis because it is unclear and uncertain which coding order is being referred to. In view of claim 13, "the coding order" in line 3 of claim 40 is suggested to be -- the first coding order -- and it has been treated as such.

Re Claim 55, lines 16 and 20 respectively: The claim limitation "the local coding order" lacks clear antecedent basis. In view of claim 1, "the local coding order" in lines 16 and 20 of claim 55 is suggested to be -- the first coding order -- and it has been treated as such.

Claims 56-57 are dependent upon claim 55.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 1-14, 24, 28-41, 51, and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taubman ("High Performance Scalable Image Compression with EBCOT" - 2000, disclosed by Applicant in PTO-1449 – IDS) in view of Keesman et al (US 5,691,770).

Re Claim 1: Taubman a method of allocating or controlling an amount of bits for encoding of source data (see Taubman, abstract, Embedded Block Coding with Optimized Truncation of the embedded bit-streams using rate-distortion [pgs 1160-111, Section II. Rate Distortion Optimization]), including: (i) defining a target bit rate for the encoding of the source data (see Taubman, abstract, Section A. Efficient One Pass Rate Control, Rmax, Section II. Rate Distortion Optimization); (ii) defining collections of coefficients of the source data (see Taubman, Section II. Rate Distortion Optimization, the collection of coefficients are code blocks of the subbands); (iii) defining a global coding order of the collections of coefficients (see Fig. 1, the image is decomposed into subbands, LL then LH then HL then HH is the order because the low resolution is where the most significant information is held); (iv) defining a plurality of coding units and corresponding allowable truncation points for each of said collections of coefficients (see Taubman, Section D. Fractional Bit Planes and Scanning Order, the coding units

or coding passes with the identification of the truncation points); (v) defining a local coding order of said coding units for each of said collections of coefficients (see Taubman, Section D. Fractional Bit Planes and Scanning Order, the four coding passes P1, P2, P3, P4 are in that order); (vi) defining a rate value and a distortion value for each of said coding units of each of said collections of coefficients (see Taubman, Section D. Fractional Bit Planes and Scanning Order, Fig. 6a, the rate and distortion associated with the end of each coding pass); (vii) defining a threshold value for each of said coding units of each of said collections of coefficients (see Taubman, Section II. Rate Distortion Optimization, rate and distortion are compared to threshold λ); and (viii) encoding each of the collections of coefficients according to the global coding order, wherein if a predetermined termination criterion is not met for a particular coding unit of the plurality of coding units of one of the collections of coefficients, the particular coding unit will be included in an output code-stream, and if the termination criterion is met, an encoding of the one of the collection of coefficients is terminated (see Taubman, Section – Introduction, last paragraph, Section II. Rate Distortion Optimization, using the RD slope information of the truncation points with the threshold decides which encoded information will and won't be outputted).

However, Taubman doesn't explicitly disclose encoding in turn since he requires the RD slope curve be pre-computed.

Keesman discloses that the optimal λ isn't required but only a good approximation by using the RD curve derived from the distribution of coefficient

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amplitudes for the specific code-block (coefficients of the specific spatial frequency) allowing the encoding be accomplished in turn [see Keesman, col. 2, lines 19-33].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Taubman's method using Keesman's teachings by including a good approximation λ by using the RD curve from the distribution of coefficient amplitudes for the specific code-block (coefficients of the specific spatial frequency) in order to reduce Taubman's complex computation of the optimal λ (see Keesman, col. 2, lines 19-33).

Re Claim 2: Taubman further discloses said collections of coefficients of the data are code-blocks (see Taubman, Section II. Rate Distortion Optimization).

Re Claim 3: Taubman further discloses the rate value is an amount of bits needed to encode the particular coding unit, or a first neighboring coding unit according to the local coding order, of the one of the collections of coefficients and the distortion value is a distortion reduction due to an including of the coding unit in the output code-stream, or the including of a second neighboring coding unit according to the local coding order of the collection of coefficients (see Taubman, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order, rate and distortion value corresponding to the end of each coding pass).

Re Claim 4: Taubman further discloses a rate-distortion value is computed from the rate value and the distortion value, and the said termination criterion is that the rate-distortion value is below a threshold (see Taubman, Section – Introduction, last paragraph, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order, using the RD slope information of the truncation points with the threshold decides which encoded information will and won't be outputted).

Re Claim 5: Taubman further discloses the rate-distortion value is a fractional number with a denominator being the rate value and a numerator being the distortion value for each said coding unit of each said collection of coefficients (see Taubman, Section – Introduction, last paragraph, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order).

Re Claim 6: Taubman further discloses the rate-distortion value is a fractional number with a denominator being the rate value and a numerator being the distortion value for each said coding unit (see Taubman, Figs. 6a-6b, Section – Introduction, last paragraph, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order).

Re Claim 7 [as best understood by the Examiner]: Taubman further discloses the threshold value is a predetermined constant common to either all the collections of coefficients, all the coding units of the one of the collections of coefficients, or fewer

than all of the coding units of the one of the collections of coefficients (see Taubman, Figs. 6a-6b, Section II. Rate Distortion Optimization, paragraph "The determination of the optimal truncation point ...", Section D. Fractional Bit Planes and Scanning Order).

Re Claim 8 [as best understood by the Examiner]: Taubman further discloses the threshold value is a fractional number with a denominator being a difference between the target bit rate and a total amount of bits used to encode all past code-blocks according to the global coding order and all earlier coding units of the one of the collection of coefficients according to the local coding order, and a numerator being an amount of distortion if the encoding terminates at that coding unit or a neighboring coding unit according to the local coding order (see Taubman, Figs. 6a-6b, Section II. Rate Distortion Optimization, paragraph "The determination of the optimal truncation point ...", Section D. Fractional Bit Planes and Scanning Order).

Re Claim 9 [as best understood by the Examiner]: Taubman further discloses the threshold value is a product of (a) a fractional number with a denominator being a difference between the target bit rate and a total amount of bits used to encode all past collections of coefficients according to the global coding order and all earlier coding units of the one of the collection of coefficients according to the local coding order, and a numerator being an amount of distortion if the encoding terminates at that coding unit, or a neighboring unit according to the local coding order (see Taubman, Figs. 6a-6b,

Section II. Rate Distortion Optimization, paragraph "The determination of the optimal truncation point ...", Section D. Fractional Bit Planes and Scanning Order).

Although Taubman, as modified by Keesman, doesn't explicitly disclose that the threshold value is a product with an additional weighting factor, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have such a feature in order to better choose an appropriate threshold value instead of possibly having an unbounded one.

Re Claim 10: Taubman further discloses the collections of coefficients are code-blocks of coefficients of the source data in a data transform domain (see Taubman, Fig. 1, Section II. Rate Distortion Optimization).

Re Claim 11: Taubman further discloses the collections of coefficients are code-blocks of coefficients in a data transform domain, and each coding unit is any intermediate coding pass (see Taubman, Fig. 1, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order).

Re Claim 12: Taubman further discloses the data transform domain is a discrete wavelet domain in accordance with JPEG2000 and the any intermediate coding pass is a significance pass, a refinement pass, or a cleanup pass in accordance with JPEG2000 (see Taubman, Fig. 1, Section I. Introduction, Section II. Rate Distortion Optimization, Section D. Fractional Bit Planes and Scanning Order, P1-P4).

Re Claim 13: Taubman further discloses the collections of coefficients are code-blocks of coefficients in a data transform domain, and the global coding order is predefined (see Taubman, Fig. 1, Section II. Rate Distortion Optimization).

Re Claim 14: Taubman further discloses the collections of coefficients are code-blocks of coefficients of the source data in a data transform domain (see Taubman, Fig. 1, Section II. Rate Distortion Optimization).

Although Taubman as modified by Keesman doesn't explicitly suggest the collections of coefficients are of data formed by a difference of the source data and another source data, it would have been obvious to one of ordinary skill in the art because it is very common in video coding to code difference frames [motion frames] in order to reduce the video encoding computation load.

Re Claim 24: Taubman further discloses the code-blocks are examined according to the global coding order (see Taubman, Fig. 1, Section II. Rate Distortion Optimization).

As to claims 28-41 and 51 [as best understood by the Examiner], the claims are the corresponding article of manufacture claims to claims 1-14 and 24 respectively. The discussions are addressed with regard to claims 1-14 and 24 respectively.

As to claims 55-57 [as best understood by the Examiner], the claims are the corresponding apparatus [means plus function] claims to claims 1-3 respectively. The discussions are addressed with regard to claims 1-3.

The limitations "means for defining" in lines 4, 5, 6, 7, 9, 11, and 13 invoke 35 U.S.C. 112, 6th paragraph.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ramchandran et al discloses JPEG/MPEG decoder compatible optimized thresholding for image and video signal compression; Chen et al discloses pre-compression rate-distortion optimization method for JPEG2000; Le et al discloses embedded image coder with rate-distortion optimization; Taubman discloses method for visual optimization of embedded block codes to exploit visual masking phenomena.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BERNARD KRASNIC whose telephone number is (571)270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624
Bernard Krasnic
July 16, 2008